Mining and Geological Engineers, Including Mining Safety Engineers

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Nature of the Work

Mining and geological engineers find, extract, and prepare coal, metals, and minerals for use by manufacturing industries and utilities. They design open pit and underground mines, often using computers; supervise the construction of mine shafts and tunnels in underground operations; and devise methods for transporting minerals to processing plants. Mining engineers are responsible for the safe, economical, and environmentally sound operation of mines. Some mining engineers work with geologists and metallurgical engineers to locate and appraise new ore deposits. Others develop new mining equipment or direct mineral processing operations to separate minerals from the dirt, rock, and other materials with which they are mixed. Mining engineers frequently specialize in the mining of one mineral or metal, such as coal or gold. With increased emphasis on protecting the environment, many mining engineers work to solve problems related to land reclamation and water and air pollution.

Mining safety engineers use their knowledge of mine design and practices to ensure the safety of workers and to comply with State and Federal safety regulations. They inspect walls and roof surfaces, test air samples, and examine mining equipment for compliance with safety practices.

Employment

Mining and geological engineers, including mining safety engineers, held about 5,200 jobs in 2002. While about 4 out of 10 mining engineers worked in the mining industry, over one-third worked in professional, scientific, and technical services firms, mostly providing consulting and other services to the mining industry. Most of the rest worked in State or Federal government.

Mining engineers often are employed at the location of natural deposits, often near small communities, and sometimes outside the United States. Those in research and development, management, consulting, or sales, however, often are located in metropolitan areas.

Job Outlook

Despite a projected decline in employment, very good employment opportunities are expected in this small occupation. A significant number of mining engineers currently employed are approaching retirement age, which should create some job openings over the 2002-12 period. In addition, relatively few schools offer mining engineering programs, and the small number of graduates is not expected to increase.

Favorable job opportunities also may be available worldwide as mining operations around the world recruit graduates of U.S. mining engineering programs. As a result, some graduates should expect to travel frequently, or even live abroad.

Employment of mining and geological engineers, including mining safety engineers, is projected to decline through 2012. Most of the industries in which mining engineers are concentrated—such as coal, metal, and copper mining—are expected to experience declines in employment.

Earnings

Median annual earnings of mining and geological engineers, including mining safety engineers, were $61,770 in 2002. The middle 50 percent earned between $48,250 and $77,160. The lowest 10 percent earned less than $36,720, and the highest 10 percent earned more than $93,660.

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According to a 2003 salary survey by the National Association of Colleges and Employers, bachelor's degree candidates in mining and mineral engineering (including geological) received starting offers averaging $44,326 a year.

Sources of Additional Information

For more information on careers, education, accreditation, and related topics for mining engineers, contact:

➤ The Society for Mining, Metallurgy, and Exploration, Inc., 8307 Shaffer Parkway, P.O. Box 277002, Littleton, CO 80127. Internet: **http://www.smenet.org**

See the introduction to the section on engineers for information on working conditions, training requirements, and other sources of additional information.